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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LAROSE, COLIN M

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/447,256

Applicant(s)

NAKAJIMA, NOBUYOSHI

Examiner

Colin M. LaRose

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Arguments and Amendments

1. Applicant's amendments and arguments filed 3 January 2005, have been entered and made of record.

Response to Amendments and Arguments

2. The previous Office action mistakenly stated in paragraph 4 that claims 1-6 were rejected under 35 USC § 102(a) in view of Horii. It should have stated that claims 1-6 *and 8, 10, and 12* were rejected. Examiner thanks the Applicant for noting this mistake.
3. Applicant's arguments regarding claims 1, 3, and 5 have been fully considered but they are not persuasive for at least the following reasons.

Applicant presents two arguments: Horii does not disclose (1) a plurality of normalized image signals being laid out, and (2) a face pattern normalization process performed on each of the original image signals. See Applicant's Remarks, pp. 10-12.

Regarding the first argument, Applicant asserts that Horii does not disclose "a plurality of person images are laid out," since Horii combines first and second images, G1 and G2, with a background facial image, G3, to create an overlaid, synthesized image. Examiner disagrees with this assertion. As indicated in the prior Office action, the term "laid out" was interpreted as encompassing "overlaid." Broadly interpreted, "laying out" a plurality of images, means that the images are simply positioned or arranged. It is clear from Horii's disclosure that the first and second images, G1 and G2, (after normalizing them to a third image, G3) are "merged" so that they overlap each other. This is equivalent to "laying out" (i.e. arranging, positioning, orienting,

Art Unit: 2623

etc.) the normalized images “in a predetermined layout” (i.e. the predetermined superposed layout).

Regarding the second argument, Applicant asserts that Horii “does not normalize a plurality of images to obtain a plurality of normalized image signals,” due to the fact that “only one synthesized facial image is obtained from the merging of G1, G2, and G3.” While it may be true that G1, G2, and G3 are merged to form a synthesized image, Horii discloses that the first and second facial images, G1 and G2, must be normalized in accordance with facial image G3 prior to synthesis. Shape interpolation processor 1 is utilized to normalize G1 and G2 based on the pattern matching results from processors 11 and 12. See e.g. figure 3C. Only thereafter are the normalized faces outputted to a color interpolation processor 2, which interpolates the colors of the normalized images and produces the synthesized image data. That is, G1 and G2 are normalized to create a “plurality of normalized image signals,” which are then laid out.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-6, 8, 10, and 12-18 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent 5,850,463 by Horii.

Regarding claims, 1, 3, and 5, Horii discloses an image processing method/apparatus/computer-readable medium (figure 1) for obtaining a layout image signal

Art Unit: 2623

representing a layout image ("synthesized image data"), in which a plurality of person images are laid out, from a plurality of original image signals (G1 and G2), each of the original image signals representing a person image, in which a face pattern of a person is embedded, the method comprising the steps of:

i) detecting a face candidate region from each of the original image signals, said face candidate region representing a position and/or size of the face pattern of the person in the person image represented by each original image signal ("shape data" corresponding to face candidate regions for images G1 and G2 is detected by the conventional method of deriving wire frames; column 1, lines 36-47);

ii) performing a pattern matching process for each face pattern represented by said detected face candidate region to calculate an amount of displacement and/or size difference thereof from a normalized value (shape matching processors 11 and 12 match the face candidate regions of G1 and G2 to the reference shape of G3);

iii) performing a face pattern normalizing process on each of the original image signals based on said detected face candidate region and said calculated amount of displacement and/or size difference, a plurality of normalized image signals being obtained from said face pattern normalizing process (shape interpolation processor 1 uses the pattern matching information to normalize G1 and G2 so that they correspond to G3); and

iv) laying out a plurality of images, which are represented by said normalized image signals, in a predetermined layout, whereby the layout image signal representing the thus formed layout image is obtained (the "synthesized image data" represents a layout image signal whereby G1 and G2 are overlaid ("laid out") in a predetermined layout).

Regarding claims 2, 4, and 6, Horii discloses performing the normalization process by using affine transformation (column 10, equation 1).

Regarding claims 8, 10, and 12, Horii discloses only a face outline is utilized for the pattern matching process (i.e. Horii uses only a wire frame outline such as in figure 13 for the pattern matching, rather than the actual image of the face).

Regarding claims 13, 15, and 17, Horii discloses each of the plurality of normalized image signals have a normalized person image such that each of the normalized person images are all substantially the same size (i.e. both of the facial images G1 and G2 are normalized so that they are the same size, corresponding to that of G3).

Regarding claims 14, 16, and 18, Horii discloses each of the plurality of person images that are laid out correspond to each of the original image signals in which each original image signal represents a person image (i.e. the modified G1 and G2 facial images correspond to the original G1 and G2 facial images), and wherein the plurality of normalized image signals that are obtained from said face pattern normalizing process are based solely on the corresponding original image signals (i.e. the G1 and G2 facial images, after normalization, are based only on the original G1 and G2 facial images; that is, the contents of the normalized faces G1 and G2 are substantially the same as the original G1 and G2, except that they have gone through affine transformations to normalize their respective shapes).

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 7, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horii in view of "Segmentation and Tracking of Faces in Color Images" by Sobottka et al. ("Sobottka").

Regarding claims 7, 9, and 11, Horii is silent to detecting the candidate face region in accordance with hue and saturation. Horii simply discloses that facial features represented by a wire frame model are derived from the facial images (column 1, lines 36-47).

Sobottka discloses a process for detecting and tracking a face candidate region. In particular, Sobottka discloses that the face is first detected on the basis of hue and saturation (section 2.1 and figure 1), and then facial features are extracted from the detected face (section 2.2 and figure 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Horii by Sobottka to detect the face candidate regions using hue and saturation since Sobottka teaches that detecting a facial area based on hue and saturation (section 2.1) provides a small search region from which to extract facial features (section 2.2). In this regard, the entire image need not be searched for salient facial features.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au, can be reached on (571) 272-7414. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

Art Unit: 2623

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CML
Group Art Unit 2623
19 April 2005



VIKRAM BALI
PRIMARY EXAMINER